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Environment and Conservation Committee
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Madam Chair and Committee Members:

My name is Richard Peltier, and I am an Associate Professor in Environmental Health Sciences at the University of Massachusetts Amherst. My area of expertise is in human exposure to airborne pollutants and understanding how this impacts public health. I hold a Master of Public Health from Columbia University and a PhD in Atmospheric Chemistry from Georgia Tech. Thank you for the opportunity to submit my testimony in support of S.B. 1854.

I applaud the efforts by the State of Illinois to reduce emissions of ethylene oxide across the state. While this chemical is a useful industrial compound, it is also highly carcinogenic and therefore harmful to all who are exposed to it. This is particularly concerning where susceptible populations, such as schoolchildren, are being exposed because their bodies are continuing to grow and develop. Any child forced to breathe carcinogens is outrageous because they are developing at much faster rates than adults and are, therefore, at increased risk of developing cancer; yet with their lives ahead of them, they are forced to bear the long term health effects associated with these exposures.

The recent EPA monitoring data from the Willowbrook area are deeply concerning to me because it is clear there are severe and uncontrolled emissions arising from certain permitted facilities. It is disingenuous, and frankly, dangerous, when a corporation claims to meet the technical emissions requirements for ethylene oxide, yet blatantly and continuously release ethylene oxide directly into the community as a fugitive emission. This has likely burdened the community, unknowingly, for more than 30 years.

Ethylene oxide is a colorless and odorless gas, and it is not possible to see or smell it when it is present in our environment. It also stays in the atmosphere for many weeks, and it is moved throughout communities by the wind. As it moves, it is able to penetrate into homes and schools affecting unsuspecting community members who are downwind of the source.

To the research community, it is crystal clear that ethylene oxide is a powerful carcinogen, and we know that people who are exposed to it are at a much higher risk of developing cancer. People usually do not develop cancers immediately after exposure, and it can take months or even years for cancers to be detected. This means that for those who are being exposed to ethylene oxide now are at risk of developing cancer in the future. The only solution is to stop these emissions to dramatically lower exposures.

The US EPA assumes that exposure to any level of carcinogen leads to a higher risk of developing cancer. This is a method supported by an overwhelming consensus of environmental health scientists. The only amount of ethylene oxide in our community that won't lead to cancer is zero.

Industrial facilities point to their own recent measurements of stack testing where it is clear that the facility has the technology and capability to adequately control stack emissions. There are many commercial vendors who offer custom three-stage scrubbing systems, for example, which convert ethylene oxide to inert compounds at very high efficiencies. The facilities around Willowbrook appear to use such a device to capture emissions from their sterilization chambers, and they seem to work well.

But they make no apparent effort to reduce fugitive emissions, and this is so clearly seen in the recent data that indicates ethylene oxide is pouring into the community every day. After a product is removed from the sterilization chamber, it is stored for almost two weeks in an aeration room, where leftover ethylene oxide is off-gassed from the product prior to shipping the item, typically by truck. Thus in an active facility, it likely has a continual source of sterilized products giving off residual ethylene oxide, and this is the likely source of fugitive emissions from these facilities.


This off-gassing is not necessarily a difficult problem to solve, and a company could install simple negative pressure ventilation to capture and neutralize off-gassing chemicals. It's a simple technology already employed by autobody paint shops, university laboratories, hospitals, and even our high school arts classrooms. When employed in a sterilization facility, off-gassed ethylene oxide is captured and sent to scrubbers as well, a process that is highly effective at reducing fugitive emissions.

Instead of working to capture these emissions, industries tend to rely on scare tactics or to cast doubt on science instead of solving their problem, presumably because these approaches cost very little. Rather, I would encourage emitting industries to look at the many existing technologies currently on the market to capture and constrain these emissions from their facilities.

Removal of ethylene oxide from industrial processing is not particularly complicated, and these facilities simply seem to want to ignore this problem and leave our communities picking up the mess. Ethylene oxide is used in many locations across the United States, and most have modern and effective control scrubbers in place. We'd like to hope that industrial facilities are good stewards in their community, but too often, we see cheating, dishonesty, and disinterest. In the case of Willowbrook, these fugitive emissions improperly cast the burden and costs of ethylene oxide onto society, where innocent Illinoisans bear the extra medical costs, decreased property values, and worsening economies all linked to these polluters.

You and I awake in our community each day, ready to take the first of our 20,000 daily breaths. Our children do the same. I view breathing clean air is a fundamental human right for everyone – the wealthy and the poor, the powered and the disempowered, and the healthy and the sick. We rely on effective policies, crafted by you, to keep our air safe and free of harm, and I think S.B. 1854 is a step in the right direction to improve air quality across all of Illinois.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. E. Peltier', with a stylized, flowing script.

Richard E Peltier, MPH, PhD